



PATENT  
5500-88800/TT5375

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.: 10/676,437

Filed: October 1, 2003

Inventors:

Mitchell Alsup

Gregory William Smaus

James K. Pickett

Brian D. McMinn

Michael A. Fillippo

Benjamin T. Sander

Title: System and Method for  
Handling Exceptional  
Instructions in a Trace  
Cache Based Processor

Examiner: Kim, Hong Chong

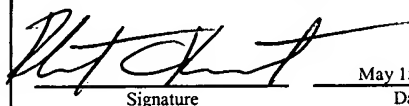
Group/Art Unit: 2185

Atty. Dkt. No: 5500-88800

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the date indicated below.

Robert C. Kowert

Printed Name



Signature

May 15, 2006

Date

INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Applicant requests consideration of ☒ the references listed on the attached Form PTO-1449 and/or ☒ the additional information identified below in paragraph 3.

☒ A copy of each required reference listed on the Form PTO-1449 is enclosed.

☐ The references listed on the Form PTO-1449 were previously cited in application serial no. \_\_\_\_\_ to which the captioned application is seeking priority under 35 U.S.C. §120; therefore, a copy of each reference is not enclosed.

1. This Information Disclosure Statement is submitted:

a. ☐ within 3 months of the filing date of a national application other than a continued prosecution application under § 1.53(d);

- ☐ within 3 months of the date of entry of the national stage as set forth in § 1.491 in an International application;
- ☐ before the mailing date of a first Office Action on the merits; or
- ☐ before the mailing of a first Office Action after the filing of a request for continued examination under § 1.114.
- b. ☒ after the events of above paragraph 1a and prior to the mailing date of a final Office Action or Notice of Allowance, and thus: ☐ the certification of paragraph 2 below is provided, or ☐ a fee of \$180.00 (authorized below).
- ☒ The fee of \$180.00 is waived per the Examiner's comments in the Office Action dated February 14, 2006.
- c. ☐ after the mailing date of a final Office Action or a Notice of Allowance and prior to payment of the issue fee, and thus: the certification of paragraph 2 below is provided and a fee of \$180.00 is enclosed.

2. It is hereby certified:

- ☐ that each item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application not more than three (3) months prior to the filing of the Statement; or
- ☐ that no item of information contained in the Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application or, to the knowledge of the person signing the certification after making reasonable inquiry, was known to any individual designated in § 1.56 (c) more than three (3) months prior to the filing of the Statement.
- ☐ that each item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart application and that this communication was not received by any individual designated in § 1.56(c) more than thirty (30) days prior to the filing of the information disclosure statement;
3. ☒ Consideration of the following additional information (including any co-pending or abandoned U.S. applications, prior uses and/or sales, etc.) is requested:

U.S. Application Serial No. 10/615,506 (5500-79500)  
U.S. Application Serial No. 10/726,902 (5500-88700)  
U.S. Application Serial No. 10/755,742 (5500-90300)  
U.S. Application Serial No. 10/700,033 (5500-91600)

4. For each non-English language reference listed on the attached Form PTO-1449:

- ☐ reference is made to an English language translation submitted herewith, and/or
- ☐ reference is made to a foreign patent office search report (in the English language) submitted herewith, and/or

- ☐ reference is made to an English language translation of a foreign patent office search report submitted herewith, and/or
- ☐ reference is made to the concise explanation contained in the specification of the present application at page(s) \_\_\_\_\_, and/or
- ☐ reference is made to the concise explanation set forth below:
5. ☐ Applicant also offers the following comments for the Examiner's consideration:
6. ☐ Also enclosed is a copy of a foreign search report citing these references.
7. ☐ The listed documents were brought to the attention of the Applicant(s) after payment of the issue fee in the captioned case. The documents were cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement. Applicant(s) request this Information Disclosure Statement and attached Form PTO-1449 be placed in the file of the captioned application.
8. ☐ Applicant(s) requests that the Information Disclosure Statement and attached Form PTO-1449 and references, which are being filed before the grant of the patent and pursuant to 37 C.F.R. § 1.97(i), be placed in the file of the captioned application.

If any required fees are missing, the Commissioner is authorized to charge said fees to Meyertons, Hood, Kivlin, Kowert & Goetzl, P.C. Deposit Account No. 501505/5500-88800/RCK.

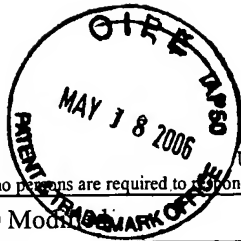
Respectfully submitted,



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Attorney for Applicant(s)

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Date: May 15, 2006



PTO/SB/08A (07-05)

Approved for use through 07/31/2006. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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Substitute for form 1449/PTO Modification	<b>Complete if Known</b>
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> (Use as many sheets as necessary)	Application Number: 10/676,437
	Confirmation No.: 7052
	Filing Date: October 1, 2003
	First Named Inventor: Mitchell Alsup
	Art Unit: 2185
	Examiner Name: Hong Chong Kim
Attorney Docket Number: 5500-88800	
Sheet 1 of 2	

U. S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. <sup>1</sup>	Document Number	Publication Date MM- DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code (if known)			
		US-2004/0143721	7/04	Pickett, et al.	
		US-7,003,629	2/21/06	Alsup	
		US-6,247,121	6/01	Akkary, et al.	
		US-3,896,419	7/75	Lange, et al.	
		US-5,381,533	1/10/95	Peleg	
		US-6,449,714	9/10/02	Sinharoy	
		US-6,339,822	1/15/02	Miller	
		US-6,256,727	7/3/01	McDonald	
		US-6,185,675	2/6/01	Kranich, et al.	
		US-6,345,295	2/02	Beardsley, et al.	
		US-5,930,497	7/99	Cherian, et al.	
		US-6,578,128	6/03	Arsenault, et al.	
		US-6,973,543	12/05	Hughes	
		US-6,823,428	11/23/04	Rodriguez, et al.	
		US-			
		US-			

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	Check if English Translation is attached
		Country Code-Number-Kind Code (if known)				
	A1	GB 2381101	4/23/03			<input type="checkbox"/>
	A2	EP 0 957 428	11/17/99			<input type="checkbox"/>
						<input type="checkbox"/>
						<input type="checkbox"/>
						<input type="checkbox"/>
						<input type="checkbox"/>
						<input type="checkbox"/>

Examiner Signature		Date Considered	
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\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to application. <sup>1</sup>Applicant's unique citation designation number (optional).

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Substitute for form 1449/PTO Modified		<b>Complete if Known</b>	
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <i>(Use as many sheets as necessary)</i>		Application Number	10/676,437
		Confirmation No.:	7052
Sheet 2 of 2		Filing Date:	October 1, 2003
		First Named Inventor:	Mitchell Alsup
		Art Unit:	2185
		Examiner Name:	Hong Chong Kim
		Attorney Docket Number:	5500-88800
<b>NON PATENT LITERATURE DOCUMENTS</b>			
Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, (page(s), volume-issue number(s), publisher, city and/or country where published.	Check if English Translation is attached
	A3	Yuan Chou, et al., "Instruction Path Coprocessors," March 2000, pp. 1-24.	<input type="checkbox"/>
	A4	Friendly, et al., "Putting the Fill Unit to Work: Dynamic Organizations for Trace Cache Microprocessors," Dept. of Electrical Engineering and Computer Sciences, The Univ. of Michigan, December 1998, 9 pages.	<input type="checkbox"/>
	A5	Bryan Black, et al., "Turboscalar: A High Frequency High IPC Microarchitecture," Dept. of Electrical and Computer Engineering, Carnegie Mellon Univ., June 2000, pp. 1-	<input type="checkbox"/>
	A6	Rotenberg, et al., "Trace Cache: A Low Latency Approach to High Bandwidth Instruction Fetching," April 11, 1996, pp. 1-48.	<input type="checkbox"/>
	A7	Merten, et al., "An Architectural Framework for Run-Time Optimization," June 2001, pp. 1-43.	<input type="checkbox"/>
	A8	Jourdan, et al., "Increasing the Instruction-Level Parallelism through Data-Flow Manipulation," Intel, 11 pages.	<input type="checkbox"/>
	A9	Hinton, G., et al., "A 0.18-MUM CMOS IA-32 Processor with a 4-GHZ Integer Execution Unit," IEEE Journal of Solid-State Circuits, Vol. 36, No. 11, November 2001, pages. 1617-1627.	<input type="checkbox"/>
	A10	Sanjay J. Patel, et al., "replay: A Hardware Framework for Dynamic Optimization," IEEE, Vol. 50, No. 6, June 2001, pp. 590-608.	<input type="checkbox"/>
	A11	Jacobson, et al., "Instruction Pre-Processing in Trace Processors," IEEE Xplore, January 1999, 6 pages.	<input type="checkbox"/>
	A12	Bryan Black, et al., "The Block-Based Trace Cache," IEEE, 1999, pp. 196-207.	<input type="checkbox"/>
	A13	Rotenberg, et al., "Trace Cache: a Low Latency Approach to High Bandwidth Instruction Fetching," IEEE, 1996, pp. 24-34.	<input type="checkbox"/>
	A14	Grant Braught, "Clas #21-Assemblers, Labels & Pseudo Instructions," Dickenson College, Fall Semester 2000, 6 pages.	<input type="checkbox"/>
	A15	Patterson, et al., "Computer Architecture A Quantitative Approach," Second Edition, Morgan Kaufmann Publishers, Inc., 1996, pp. 271-278	<input type="checkbox"/>
	A16	Palmer, et al., "Fido: A Cache That Learns to Fetch," Proceedings of the 17 <sup>th</sup> International Conference on Very Large Data Bases, Barcelona, September 1991, pp. 255-264.	<input type="checkbox"/>
	A17	Chen et al., "Eviction Based Cache Placement for Storage Caches," USENIX 2003 Annual Technical Conference, (13 pages)	<input type="checkbox"/>
	A18	International Search Report and Written Opinion, PCT/US2004/020721, mailed April 4, 2006, 10 pages.	<input type="checkbox"/>

Examiner Signature		Date Considered	
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\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to application. <sup>1</sup>Applicant's unique citation designation number (optional).